

Draft Hydrologic Condition: Upper Colorado River and Colorado River Tributaries Upstream of Colorado River at Bastrop

8/1/2011

Hydrologic condition: Combined volume of water in Lake Buchanan and Lake Travis on the last day of each season. Based on TCEQ WAM Run 3.

Hydrologic Triggers

High Base Flow

When combined volume of Lake Buchanan and Lake Travis equals or exceeds 2,163,000 acre-feet on the last day of the season, diversion of available water down to the high base flow value will be allowed in the following season. This should allow the high base flow to occur about 24% of the time.

Medium Base Flow

When combined volume of Lake Buchanan and Lake Travis is less than 2,163,000 acre-feet but greater than 2,123,000 acre-feet on the last day of the season, diversion of available water down to the medium base flow value will be allowed in the following season. This should allow the medium base flow to occur about 51% of the time.

Low Base Flow

When combined volume of Lake Buchanan and Lake Travis is less than 2,123,000 acre-feet but greater than 1,446,000 acre-feet on the last day of the season, diversion of available water down to the low base flow value will be allowed in the following season. This should allow the low base flow to occur about 20% of the time.

Subsistence Flow

When combined volume of Lake Buchanan and Lake Travis is less than 1,446,000 acre-feet but greater than 721,000 acre-feet on the last day of the season and flow is less than the low base flow, diversion of available water down to the subsistence value will be allowed in the following season. Under these conditions, subsistence flow should occur about 5.3% of the time.

Rules for Implementation:

- When flows drop below the designated base flow, diversions can no longer be made. For example, when the hydrologic condition allows available water to be diverted down to the high base flows, diversions would stop when available water dropped below the high base flow value.
- These hydrologic triggers apply when there is not a qualifying pulse occurring.

Draft Hydrologic Condition: Lavaca-Navidad streams

8/1/2011

Hydrologic condition: Volume of water in Lake Texana on the last day of each season. Based on LNRA historical data from 1983-2010.

Hydrologic Triggers

High Base Flow Trigger: Greater than 166,200 acre-feet

When Lake Texana storage equals or exceeds 166,200 acre-feet on the last day of the season, diversion of available water down to the high base flow value will be allowed in the following season. This should allow the high base flow to occur about 24% of the time.

Medium Base Flow: Greater than 162,000 acre-feet

When Lake Texana storage is less than 166,200 acre-feet but greater than 162,800 acre-feet on the last day of the season, diversion of available water down to the medium base flow value will be allowed in the following season. This should allow the medium base flow to occur about 52% of the time.

Low Base Flow: Greater than 152,700 acre-feet

When Lake Texana storage is less than 162,800 acre-feet but greater than 152,700 acre-feet on the last day of the season, diversion of available water down to the low base flow value will be allowed in the following season. This should allow the low base flow to occur about 18% of the time.

Subsistence Flow: Greater than 127,000 acre-feet

When Lake Texana elevation storage is less than 152,700 acre-feet but greater than 127,000 acre-feet on the last day of the season and flow is less than the low base flow, diversion of available water down to the subsistence value will be allowed in the following season. Under these conditions, subsistence flow should occur about 5.6% of the time.

Rules for Implementation:

- When flows drop below the designated base flow, diversions can no longer be made. For example, when the hydrologic condition allows available water to be diverted down to the high base flows, diversions would stop when available water dropped below the high base flow value.
- These hydrologic triggers apply when there is not a qualifying pulse occurring.

SUMMARY OF HYDROLOGIC CONDITION ENGAGEMENT ANALYSIS

USING BBEST IMPLEMENTATION APPROACH FOR SITES UPSTREAM OF THE HIGHLAND LAKES, THE LAVACA BASIN, AND THE COASTAL BASINS

CL BBEST / BBASC July 18, 2011

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Page #	DATA USED TO DEVELOP STORAGE TRIGGERS						RESULTING STORAGE TRIGGERS																			
	SOURCE DATA	HYDRO CONCEPT	CONSERVATION		TYPE	PERIOD OF RECORD	BASE HIGH (1)				BASE MEDIUM (1)				BASE LOW				SUBSISTENCE							
			STOR (KAF)	ELEV (MSL)			TRIGGER TO ENGAGE	STO ELEV (KAF)	% FULL	% TIME	TRIGGER TO ENGAGE	STO ELEV (MSL)	% FULL	% TIME	TRIGGER TO ENGAGE	STO ELEV (MSL)	% FULL	% TIME	TRIGGER TO ENGAGE	STO ELEV (MSL)	% FULL	% TIME				
(1)	LCRA: HIGHLAND LAKES (BUCHANAN + TRAVIS)						GOAL: 25% OF TIME																			
(1)	TCEQ RUN3	STORAGE	2,163	N/A	SIM	1940-1998	2,163	N/A	100.0%	23.8%	2,123	N/A	98.1%	50.5%	1,446	N/A	66.9%	20.4%	721	N/A	33.3%	5.3%				
(2)	TCEQ RUN8	STORAGE	2,021	N/A	SIM	1940-1998	2,021	N/A	100.0%	23.8%	2,021	N/A	100.0%	49.9%	1,745	N/A	86.3%	20.7%	1,354	N/A	67.0%	5.5%				
(3)	LCRA	STORAGE	2,011	N/A	HIST	1980-2010	2,547	N/A	126.7%	24.9%	1,928	N/A	95.9%	49.9%	1,591	N/A	79.1%	17.7%	1,104	N/A	54.9%	7.5%				
LCRA'S LAKE BUCHANAN																										
(4)	TCEQ RUN3	STORAGE	992	1020.0	SIM	1940-1998	992	N/A	100.0%	25.0%	991	N/A	99.9%	48.8%	732	N/A	73.7%	21.0%	444	N/A	44.7%	5.3%				
(5)	TCEQ RUN8	STORAGE	889	1020.0	SIM	1940-1998	889	N/A	100.0%	23.8%	889	N/A	100.0%	50.5%	682	N/A	76.7%	20.7%	386	N/A	43.4%	5.0%				
(6)	LCRA	STORAGE	876	1020.0	HIST	1980-2010	882	1020.3	100.8%	25.5%	831	1018.0	94.9%	47.7%	678	1010.6	77.4%	20.4%	490	999.9	56.0%	6.4%				
LCRA'S LAKE TRAVIS																										
(7)	TCEQ RUN3	STORAGE	1,171	681.0	SIM	1940-1998	1,171	N/A	100.0%	23.8%	1,137	N/A	97.1%	50.2%	728	N/A	62.2%	20.4%	209	N/A	17.8%	5.5%				
(8)	TCEQ RUN8	STORAGE	1,132	681.0	SIM	1940-1998	1,132	N/A	100.0%	32.0%	1,132	N/A	100.0%	42.3%	1,071	N/A	94.6%	20.7%	960	N/A	84.8%	5.0%				
(9)	LCRA	STORAGE	1,135	681.0	HIST	1980-2010	1,664	704.6	146.6%	26.0%	1,119	680.2	98.6%	49.3%	892	667.2	78.6%	18.2%	634	648.5	55.9%	6.4%				
LNRA'S LAKE TEXANA																										
(10)	TCEQ RUN3	STORAGE	170.3	45.0	SIM	1940-1996	170.3	N/A	100.0%	30.5%	170.3	N/A	100.0%	43.5%	132.5	N/A	77.8%	20.7%	93.3	N/A	54.8%	5.3%				
(11)	TCEQ RUN8	STORAGE	165.7	45.0	SIM	1940-1996	165.7	N/A	100.0%	36.2%	165.7	N/A	100.0%	36.8%	146.3	N/A	88.3%	22.8%	125.5	N/A	75.7%	4.2%				
(12)	LNRA	STORAGE	161.1	44.0	HIST	1983-2010	166.2	44.5	103.1%	24.0%	162.8	44.2	101.1%	51.9%	152.7	43.1	94.8%	18.4%	127.0	40.1	78.8%	5.6%				
DATA USED TO DEVELOP FLOW TRIGGERS						RESULTING FLOW TRIGGERS																				
SOURCE DATA HYDRO CONCEPT MAXIMUM CUMULATIVE 12 MONTH FLOW (acre-feet) TYPE PERIOD OF RECORD						BASE HIGH		BASE MEDIUM				BASE LOW				SUBSISTENCE										
						TRIGGER TO ENGAGE 12 MONTH CUMULATIVE FLOW (KAF)		TRIGGER TO ENGAGE 12 MONTH CUMULATIVE FLOW (KAF)		TRIGGER TO ENGAGE 12 MONTH CUMULATIVE FLOW (KAF)		TRIGGER TO ENGAGE 12 MONTH CUMULATIVE FLOW (KAF)		TRIGGER TO ENGAGE 12 MONTH CUMULATIVE FLOW (KAF)		TRIGGER TO ENGAGE 12 MONTH CUMULATIVE FLOW (KAF)										
						% TIME	% TIME	% TIME	% TIME	% TIME	% TIME	% TIME	% TIME	% TIME	% TIME											
GOAL: 25% OF TIME						GOAL: 50% OF TIME				GOAL: 20% OF TIME				GOAL: 5% OF TIME												
SAN SABA RIVER AT SAN SABA																										
(13)	TCEQ RUN3	FLOW	503.703		SIM	1940-1998	503.7		23.8%		186.0		51.4%		70.2		19.9%		48.7		4.9%					
(14)	TCEQ RUN8	FLOW	516.567		SIM	1940-1998	516.6		24.1%		187.9		51.1%		71.6		20.8%		49.2		4.0%					
(15)	USGS	FLOW	968.106		HIST	1940-1998	968.1		22.6%		180.3		51.4%		66.4		21.4%		39.8		4.6%					
(16)	USGS	FLOW	968.106		HIST	1980-2010	968.1		23.6%		166.0		51.5%		61.1		19.3%		40.5		5.6%					

KAF Volume in Thousand Acre-Feet
MSL Elevation Referenced to Mean Sea Level
STO Storage
ELEV Elevation

NOTE 1: Subject reservoir greater than full more frequently than base high, and in some cases, base medium engagement goal.
SIMULATED RESULTS FROM WAM USED TO DEVELOP TRIGGERS.
HISTORICAL INFORMATION USED TO DEVELOP TRIGGERS.